**Sverigeite**

\[ \text{NaMn}^{2+}\text{MgSn}^{4+}\text{Be}_2\text{Si}_3\text{O}_{12}(\text{OH}) \]

**Crystal Data:** Orthorhombic. *Point Group:* 2/m 2/m 2/m. In well-formed complex crystals, to 2 mm, elongated \( || [001] \); as irregular platy segregations.

**Physical Properties:** Cleavage: \{010\}, perfect; two other directions, distinct. Hardness = \(~6.5\) \( D(\text{meas.}) = 3.60 \) \( D(\text{calc.}) = 3.61 \)

**Optical Properties:** Translucent. *Color:* Yellow; in transmitted light, pale yellow to yellow. *Streak:* Light yellow. *Luster:* Vitreous on cleavages and fractures, dull on crystal faces. *Optical Class:* Biaxial (+). *Pleochroism:* Moderate; \( X = \text{yellow} \); \( Y \approx Z = \text{pale yellow} \). Orientation: \( Z = b \). *Dispersion:* \( r > v \), strong. *Absorption:* \( X > Y \approx Z \). \( \alpha = 1.678(4) \) \( \beta = 1.684(4) \) \( \gamma = 1.699(4) \) \( 2\nu(\text{meas.}) = 67(4)^\circ \)

**Cell Data:** *Space Group:* Imma. \( a = 10.815(8) \) \( b = 13.273(8) \) \( c = 6.818(6) \) \( Z = 4 \)

**X-ray Powder Pattern:** Långban mine, Sweden. 
2.884 (100), 2.826 (90), 5.77 (70), 4.35 (70), 2.98 (60), 2.644 (60), 6.63 (50)

**Chemistry:**

\[
\begin{array}{ll}
\text{SiO}_2 & 33.5 \\
\text{SnO}_2 & 28.5 \\
\text{FeO} & 0.3 \\
\text{MnO} & 11.8 \\
\text{ZnO} & 1.2 \\
\text{BeO} & 9.7 \\
\text{MgO} & 8.1 \\
\text{Na}_2\text{O} & 6.1 \\
\text{H}_2\text{O} & 1.2 \\
\hline
\text{Total} & 100.4
\end{array}
\]

(1) Långban mine, Sweden; by electron microprobe; Be by AA, \( \text{H}_2\text{O} \) by the Penfield method; corresponds to \( \text{Na}_{1.04}(\text{Mg}_{1.06}\text{Mn}_{0.88}\text{Fe}^{2+}_{0.02})\Sigma_{=2.04}\text{Sn}_{1.00}\text{Be}_{2.06}\text{Si}_{12.96}\text{O}_{12.19}\text{H}_{0.71} \).

**Occurrence:** Found on a mine dump; possibly part of a vein assemblage.

**Association:** Mimetite, jacobsite, manganoan calcite, amphibole.

**Distribution:** From Långban, Värmland, Sweden.

**Name:** For the country where the mineral was found, Sweden, *Sverige* in Swedish.

**Type Material:** National Museum of Natural History, Washington, D.C., USA, 160023, 160341.


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